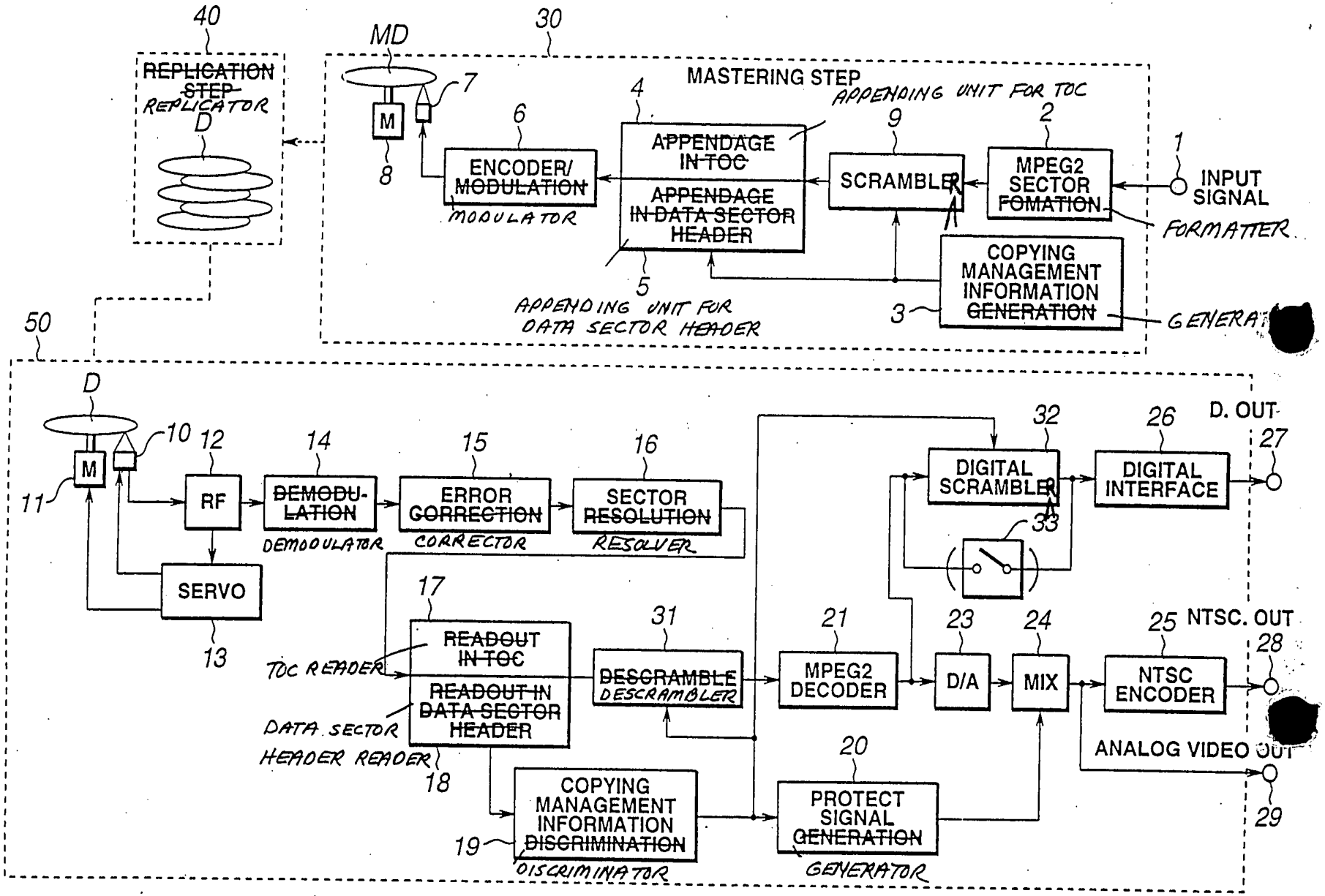


FIG.1

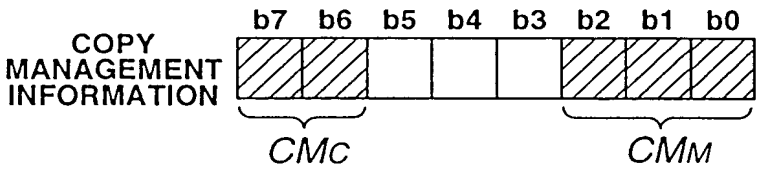


FIG.2

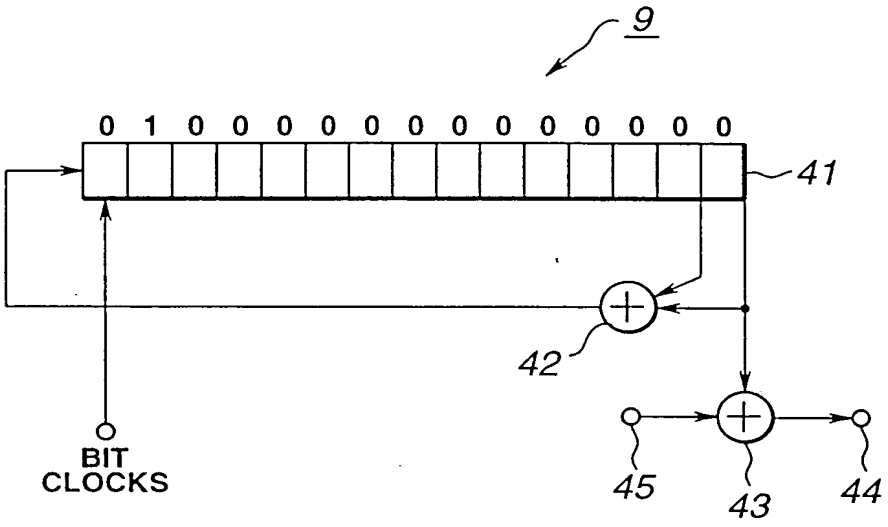


FIG.3

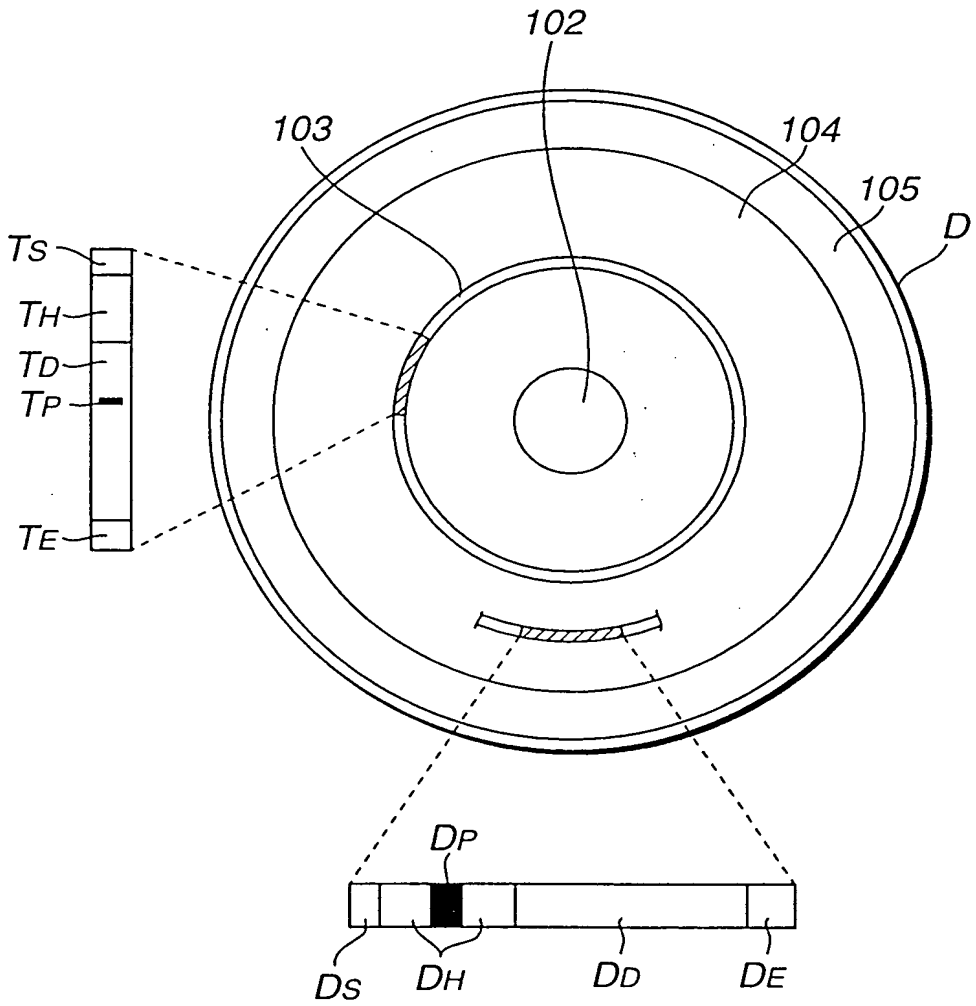


FIG.4

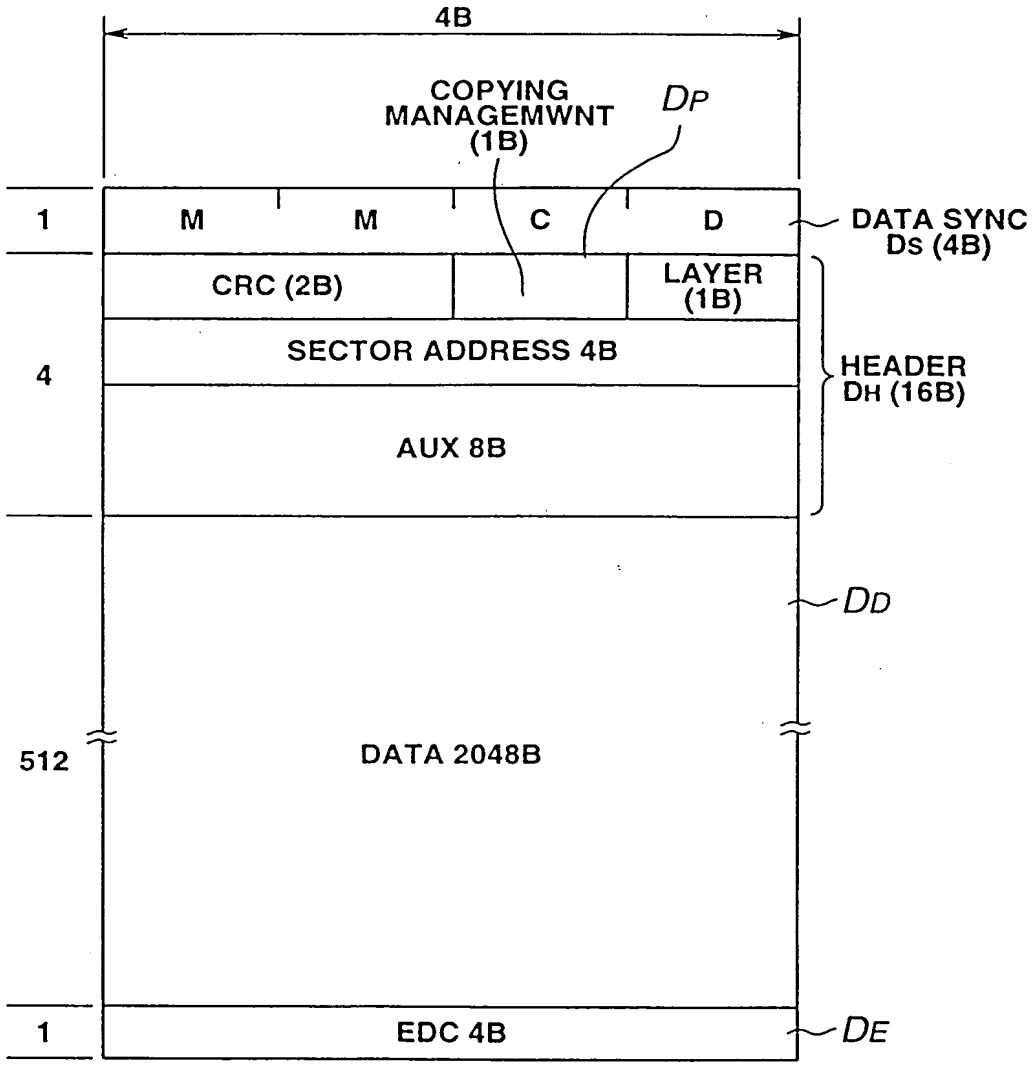

4B
COPYING MANAGEMWNT (1B)
DP
1
M
M
C
D
DATA SYNC Ds (4B)
CRC (2B)
LAYER (1B)
4
SECTOR ADDRESS 4B
HEADER DH (16B)
AUX 8B
DD
512
DATA 2048B
1
EDC 4B
DE

FIG.5

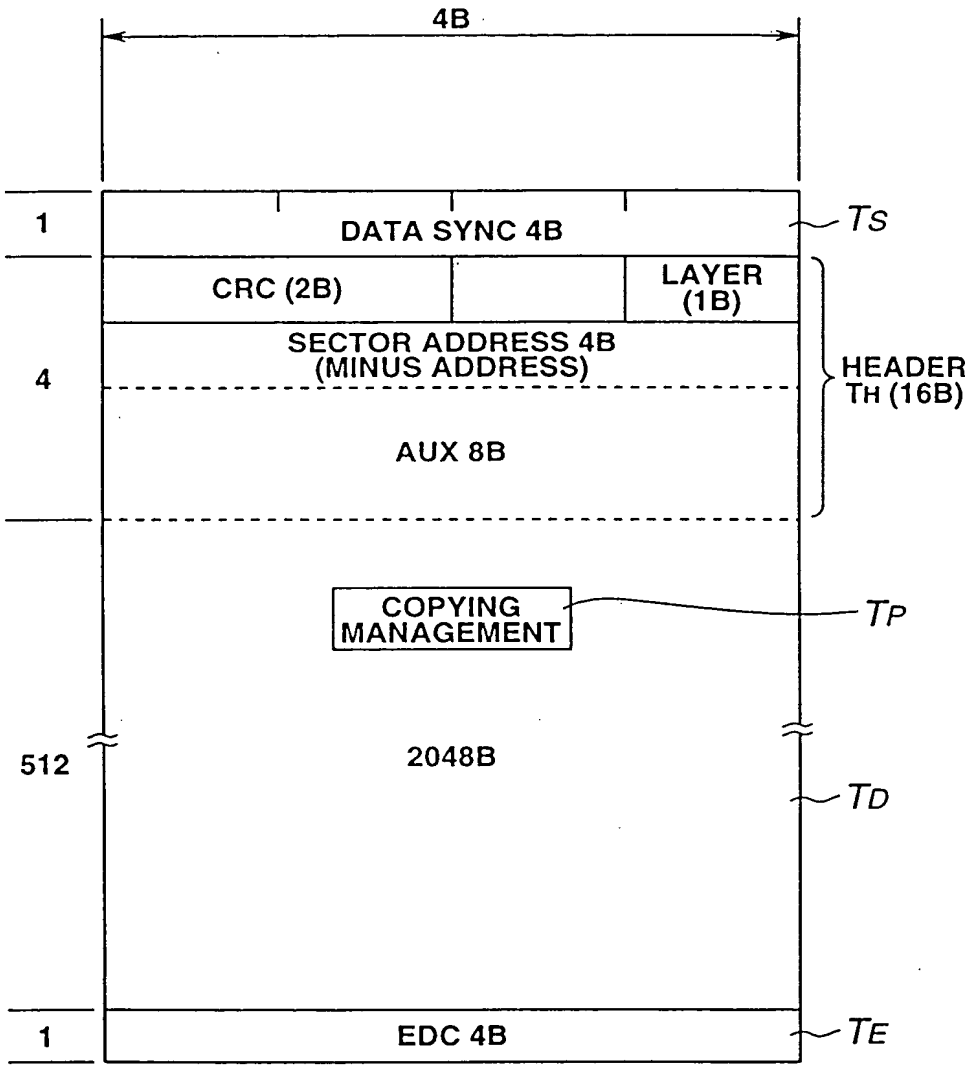

4B
1
DATA SYNC 4B
TS
CRC (2B)
LAYER (1B)
4
SECTOR ADDRESS 4B (MINUS ADDRESS)
AUX 8B
HEADER TH (16B)
COPYING MANAGEMENT
TP
512
2048B
TD
1
EDC 4B
TE

FIG.6

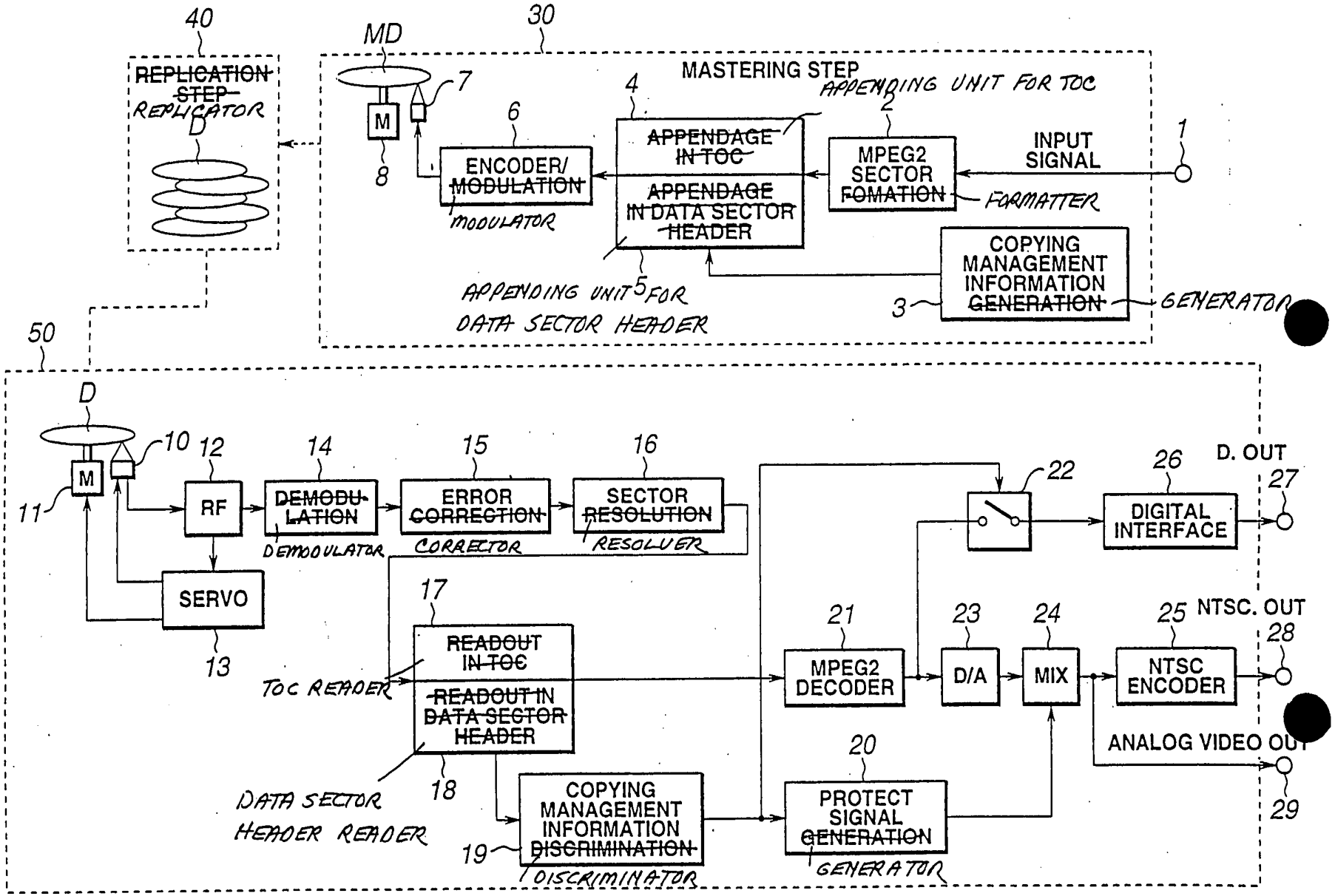
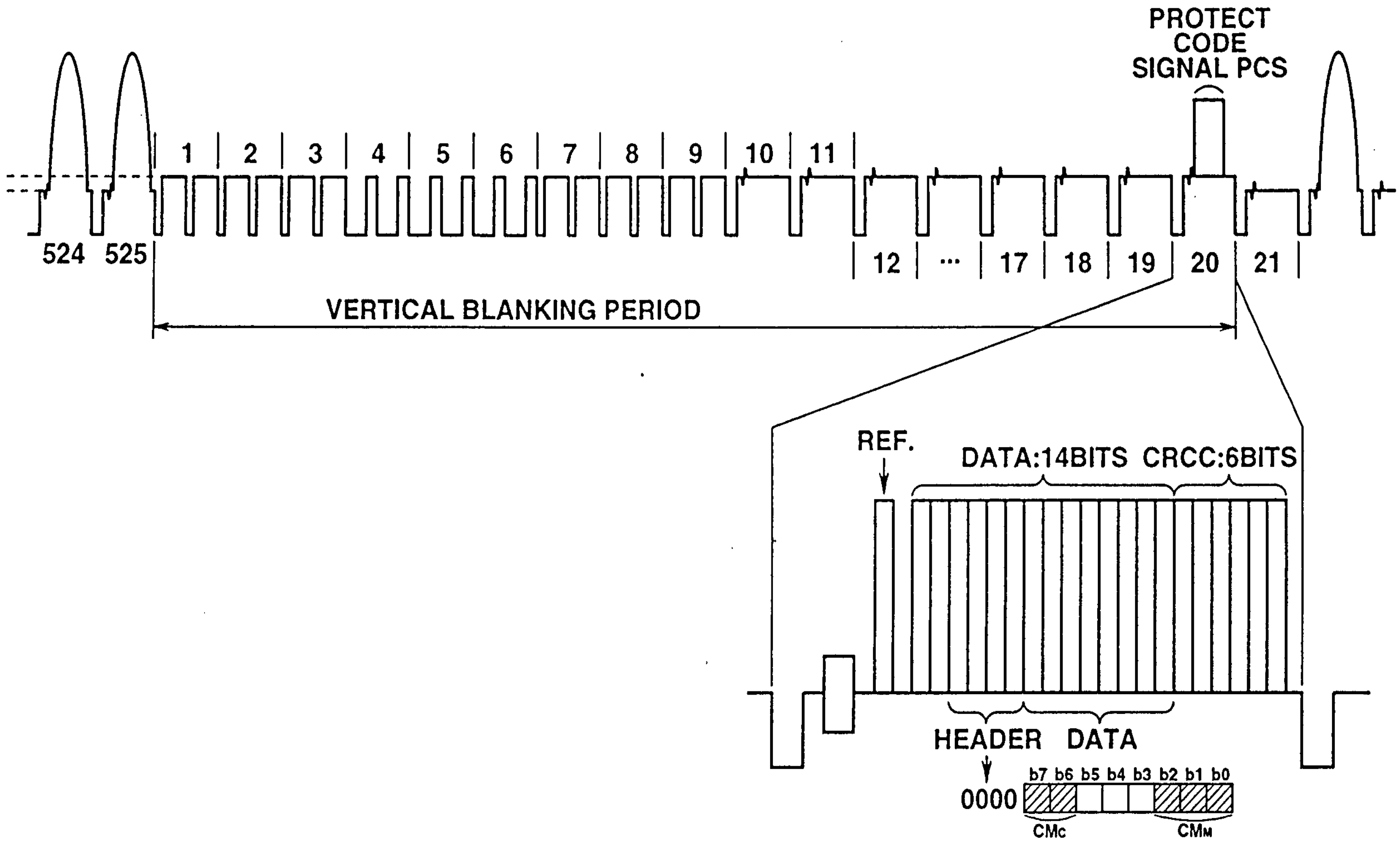

40
REPLICATION STEP
REPLICATOR
D
MD
30
MASTERING STEP
APPENDING UNIT FOR TOC
7
M
8
6
ENCODER/ MODULATION
MODULATOR
4
APPENDAGE IN TOC
APPENDAGE IN DATA SECTOR HEADER
2
MPEG2 SECTOR FOMATION
FORMATTER
INPUT SIGNAL
1
APPENDING UNIT 5 FOR DATA SECTOR HEADER
COPYING MANAGEMENT INFORMATION GENERATION
3
GENERATOR
50
D
10
12
14
15
16
M
11
RF
DEMODULATION
DEMODULATOR
ERROR CORRECTION
CORRECTOR
SECTOR RESOLUTION
RESOLVER
22
26
D. OUT
27
DIGITAL INTERFACE
SERVO
13
17
READOUT IN TOC
TOC READER
READOUT IN DATA SECTOR HEADER
DATA SECTOR HEADER READER
18
21
23
24
25
NTSC. OUT
28
MPEG2 DECODER
D/A
MIX
NTSC ENCODER
ANALOG VIDEO OUT
29
20
PROTECT SIGNAL GENERATION
GENERATOR
19
COPYING MANAGEMENT INFORMATION DISCRIMINATION
DISCRIMINATOR

FIG.7



PROTECT
CODE
SIGNAL PCS
1
2
3
4
5
6
7
8
9
10
11
524
525
12
...
17
18
19
20
21
VERTICAL BLANKING PERIOD
REF.
DATA:14BITS
CRCC:6BITS
HEADER
DATA
0000
b7 b6 b5 b4 b3 b2 b1 b0
CMc
CMM

FIG.8

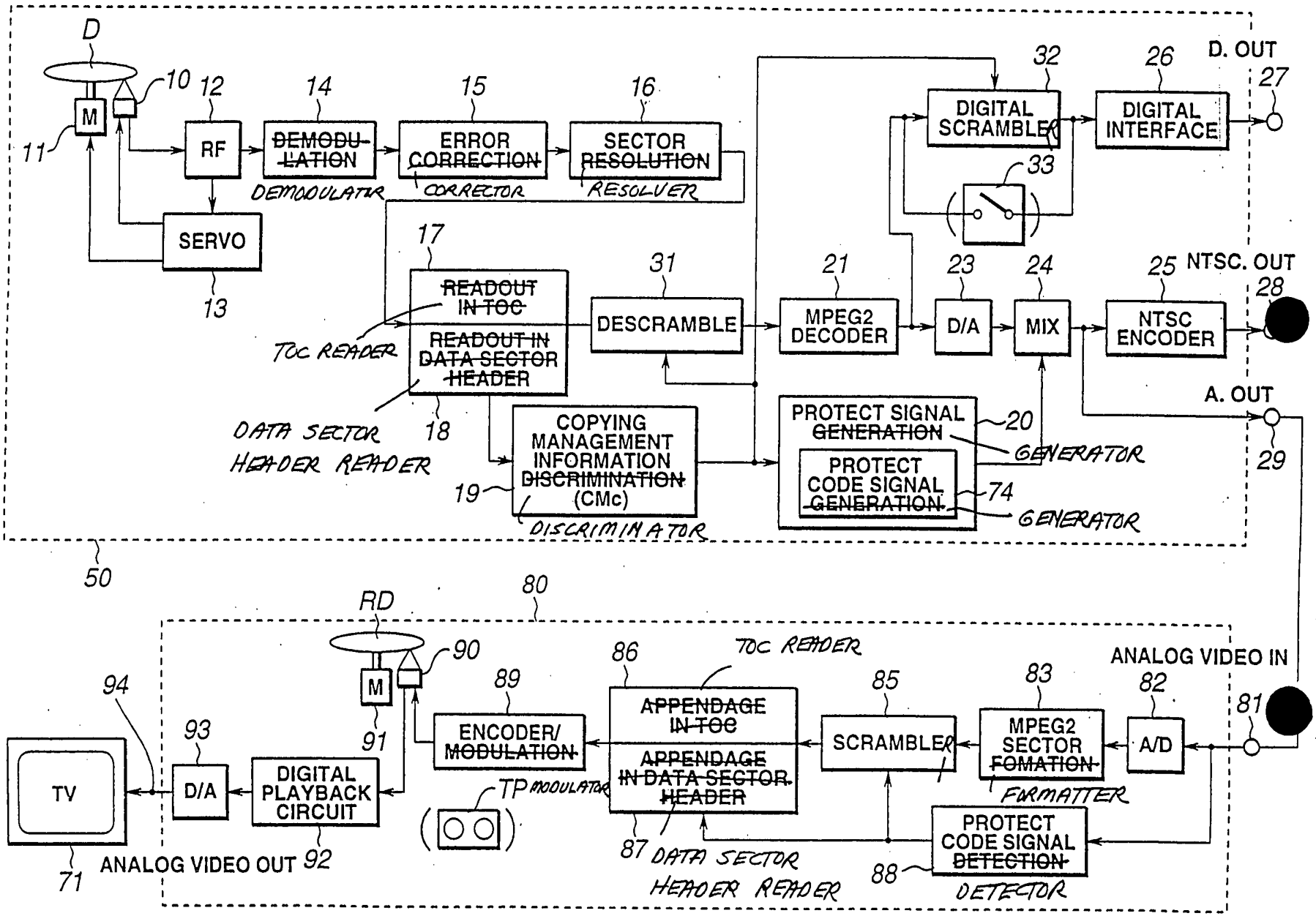

D
M
11
10
12
RF
14
DEMODULATION
DEMODULATOR
15
ERROR CORRECTION
CORRECTOR
16
SECTOR RESOLUTION
RESOLVER
SERVO
13
17
READOUT IN TOC
READOUT IN DATA SECTOR HEADER
TOC READER
DATA SECTOR HEADER READER
18
31
DESCRAMBLE
21
MPEG2 DECODER
23
D/A
24
MIX
25
NTSC ENCODER
NTSC. OUT
28
32
DIGITAL SCRAMBLER
33
26
DIGITAL INTERFACE
D. OUT
27
A. OUT
29
PROTECT SIGNAL GENERATION
20
GENERATOR
PROTECT CODE SIGNAL GENERATION
74
GENERATOR
COPYING MANAGEMENT INFORMATION DISCRIMINATION (CMc)
19
DISCRIMINATOR
50
80
RD
M
91
90
89
ENCODER/ MODULATION
TP MODULATOR
86
TOC READER
APPENDAGE IN TOC
APPENDAGE IN DATA SECTOR HEADER
87
DATA SECTOR HEADER READER
85
SCRAMBLER
83
MPEG2 SECTOR FOMATION
FORMATTER
82
A/D
81
ANALOG VIDEO IN
PROTECT CODE SIGNAL DETECTION
88
DETECTOR
94
TV
71
ANALOG VIDEO OUT
93
D/A
DIGITAL PLAYBACK CIRCUIT
92

FIG.9

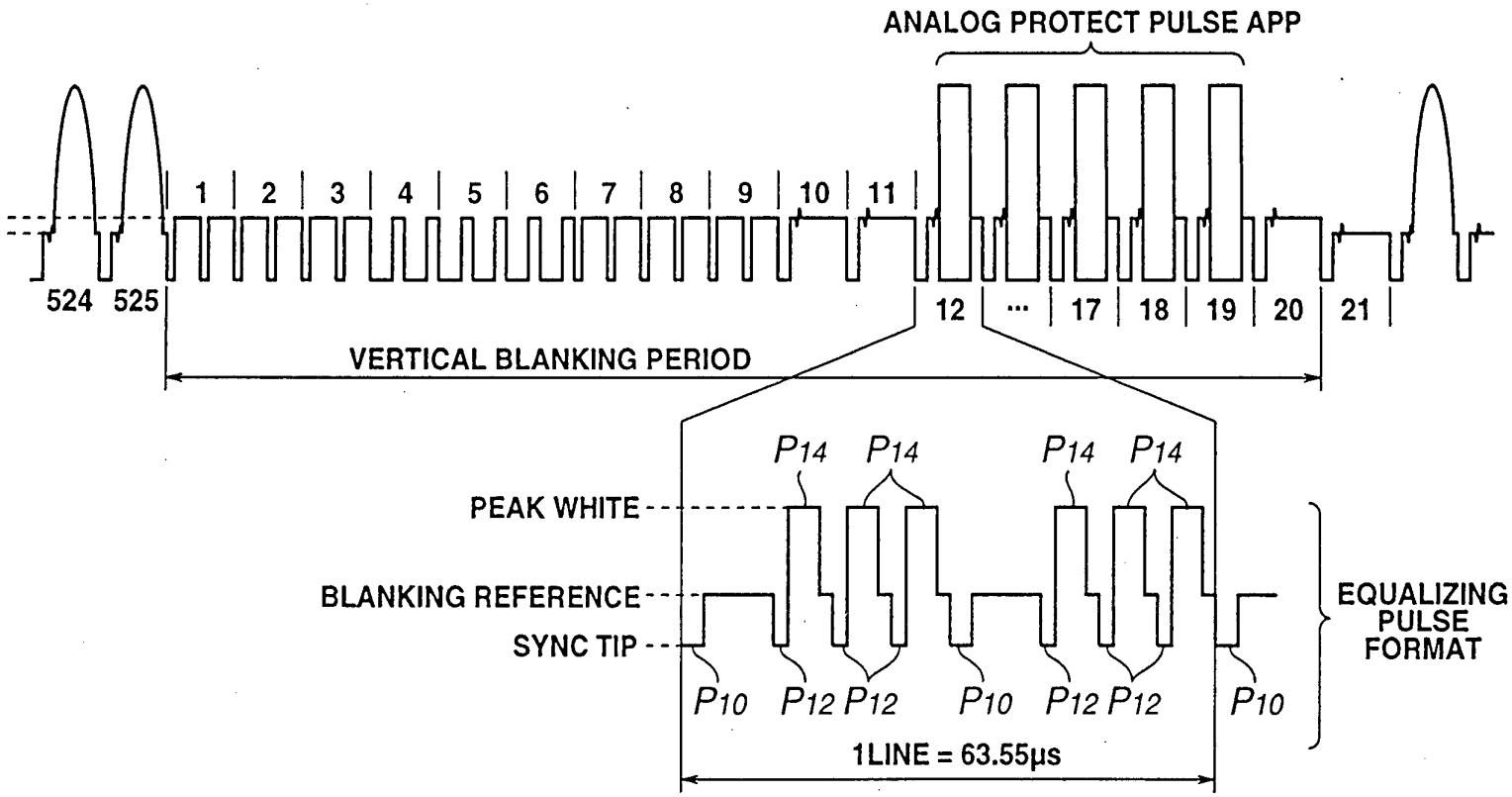

ANALOG PROTECT PULSE APP
1
2
3
4
5
6
7
8
9
10
11
524
525
12
...
17
18
19
20
21
VERTICAL BLANKING PERIOD
P14
P14
P14
P14
PEAK WHITE
BLANKING REFERENCE
SYNC TIP
P10
P12
P12
P10
P12
P12
P10
EQUALIZING PULSE FORMAT
1LINE = 63.55μs

FIG.10

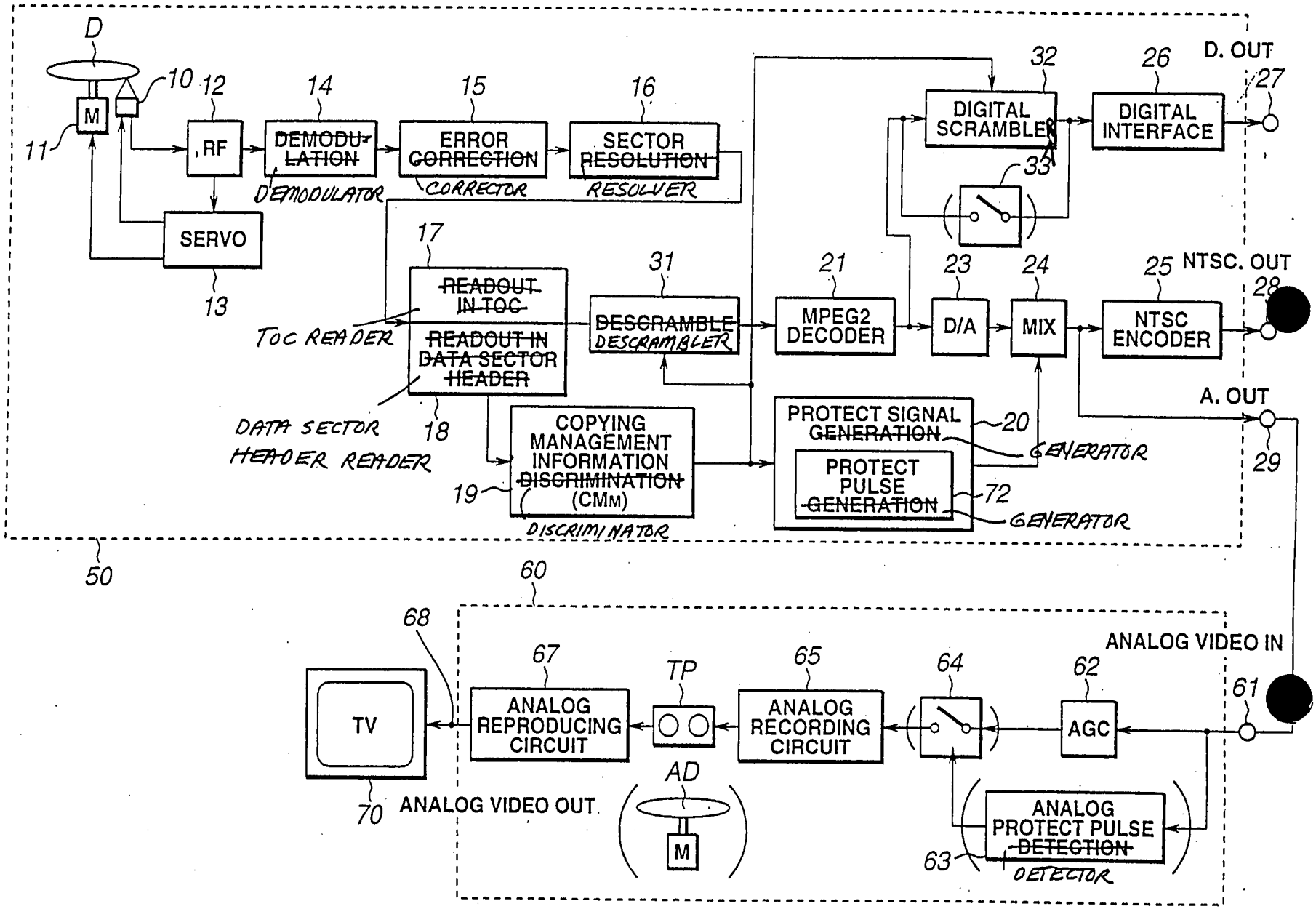


FIG.11

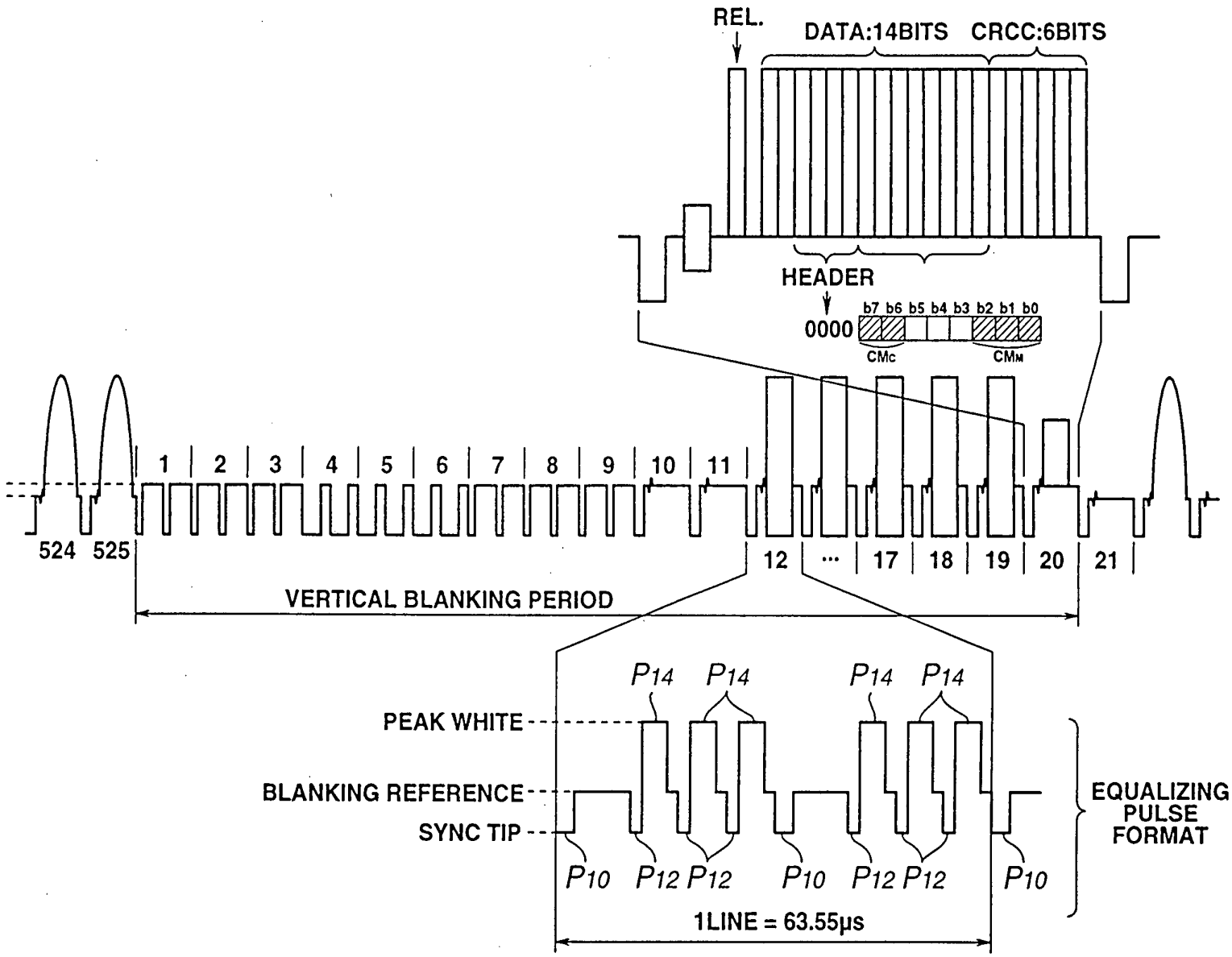

REL.
DATA:14BITS
CRCC:6BITS
HEADER
0000
b7 b6 b5 b4 b3 b2 b1 b0
CMc
CMM
1 2 3 4 5 6 7 8 9 10 11
524 525
12 ··· 17 18 19 20 21
VERTICAL BLANKING PERIOD
P14 P14 P14 P14
PEAK WHITE
BLANKING REFERENCE
SYNC TIP
P10 P12 P12 P10 P12 P12 P10
EQUALIZING PULSE FORMAT
1LINE = 63.55μs

FIG.12

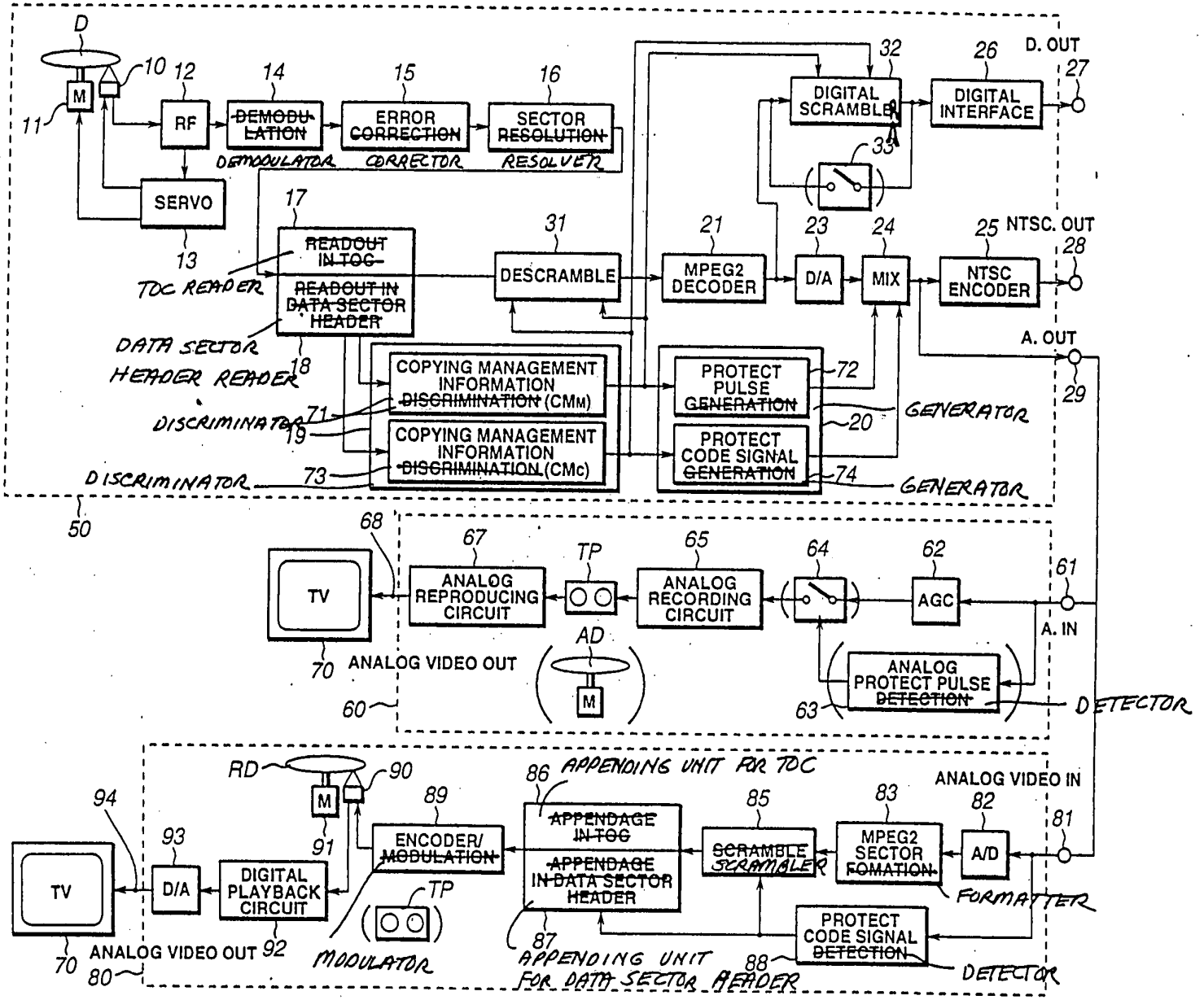

D
M
10
11
12
RF
14
DEMODULATION
15
ERROR CORRECTION
16
SECTOR RESOLUTION
DEMODULATOR
CORRECTOR
RESOLVER
SERVO
13
17
READOUT IN TOC
READOUT IN DATA SECTOR HEADER
TOC READER
DATA SECTOR HEADER READER
18
31
DESCRAMBLE
21
MPEG2 DECODER
32
DIGITAL SCRAMBLER
33
23
D/A
24
MIX
26
DIGITAL INTERFACE
D. OUT
27
25
NTSC ENCODER
NTSC. OUT
28
A. OUT
29
COPYING MANAGEMENT INFORMATION DISCRIMINATION (CMm)
71
DISCRIMINATOR
19
COPYING MANAGEMENT INFORMATION DISCRIMINATION (CMc)
73
DISCRIMINATOR
PROTECT PULSE GENERATION
72
20
GENERATOR
PROTECT CODE SIGNAL GENERATION
74
GENERATOR
50
68
TV
70
67
ANALOG REPRODUCING CIRCUIT
TP
65
ANALOG RECORDING CIRCUIT
64
62
AGC
61
A. IN
AD
M
ANALOG VIDEO OUT
60
ANALOG PROTECT PULSE DETECTION
63
DETECTOR
RD
M
90
91
94
TV
70
93
D/A
DIGITAL PLAYBACK CIRCUIT
92
ANALOG VIDEO OUT
80
89
ENCODER/ MODULATION
TP
MODULATOR
86
APPENDING UNIT FOR TOC
APPENDAGE IN TOC
APPENDAGE IN DATA SECTOR HEADER
87
APPENDING UNIT FOR DATA SECTOR HEADER
85
SCRAMBLE SCRAMBLER
83
MPEG2 SECTOR FOMATION
FORMATTER
82
A/D
ANALOG VIDEO IN
81
PROTECT CODE SIGNAL DETECTION
88
DETECTOR

FIG.13

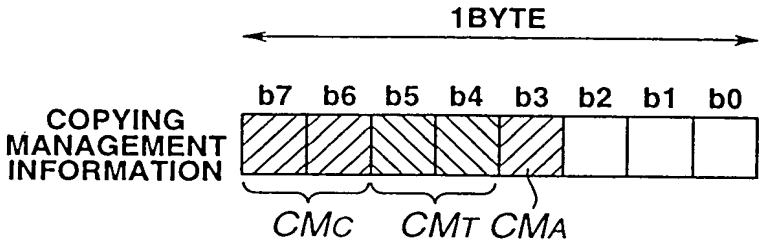

1BYTE
b7 b6 b5 b4 b3 b2 b1 b0
COPYING MANAGEMENT INFORMATION
CMC CMT CMA

FIG.14

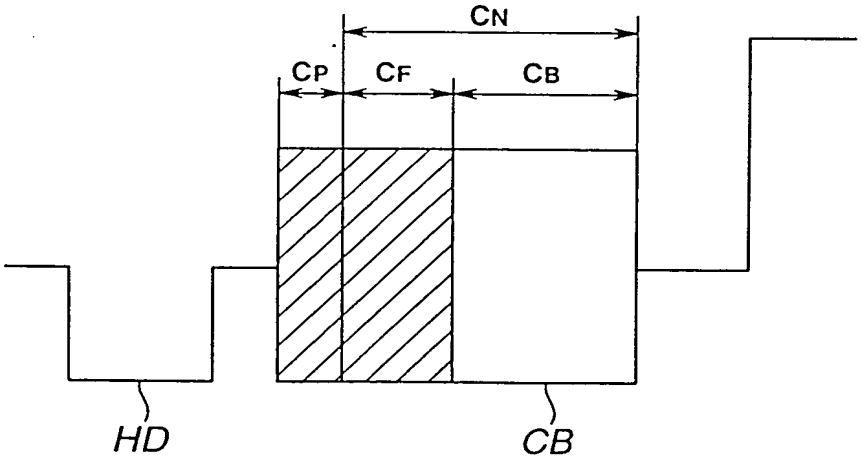

CN
CP CF CB
HD
CB

FIG.15

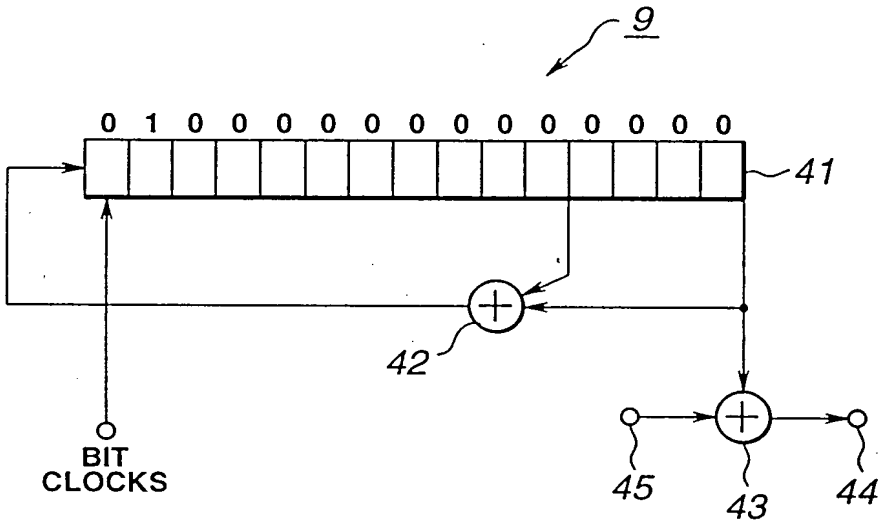


FIG.16

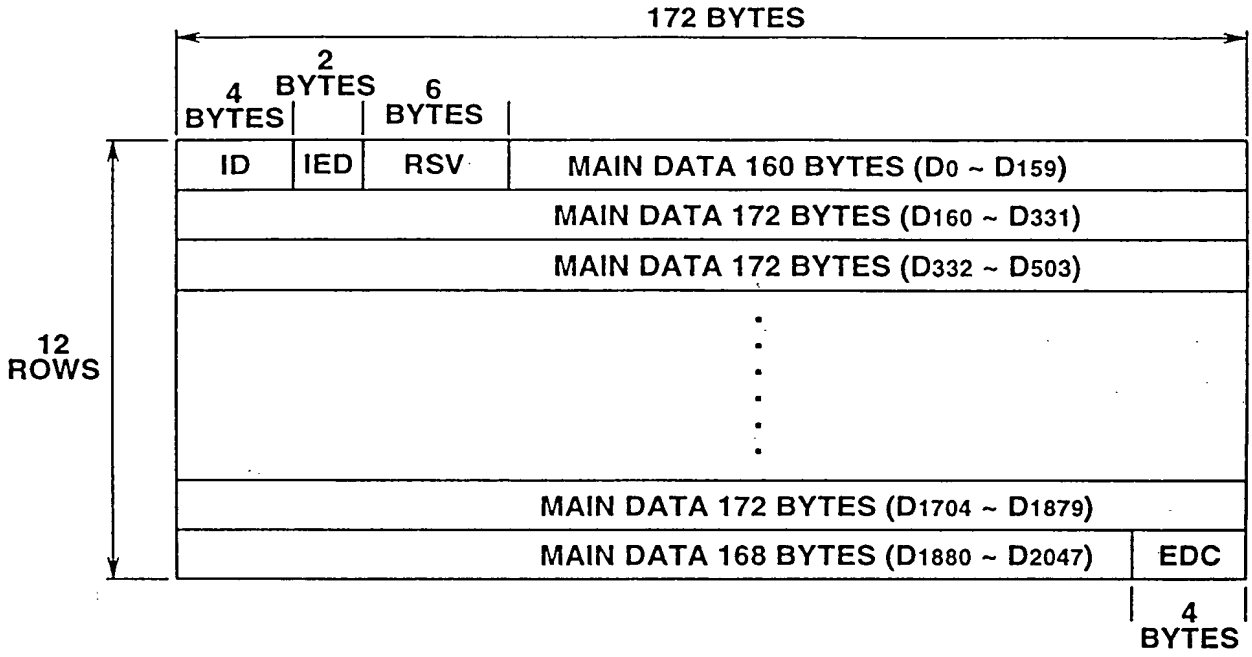

172 BYTES
4 BYTES
2 BYTES
6 BYTES
ID
IED
RSV
MAIN DATA 160 BYTES (D0 ~ D159)
MAIN DATA 172 BYTES (D160 ~ D331)
MAIN DATA 172 BYTES (D332 ~ D503)
12 ROWS
MAIN DATA 172 BYTES (D1704 ~ D1879)
MAIN DATA 168 BYTES (D1880 ~ D2047)
EDC
4 BYTES

FIG.17

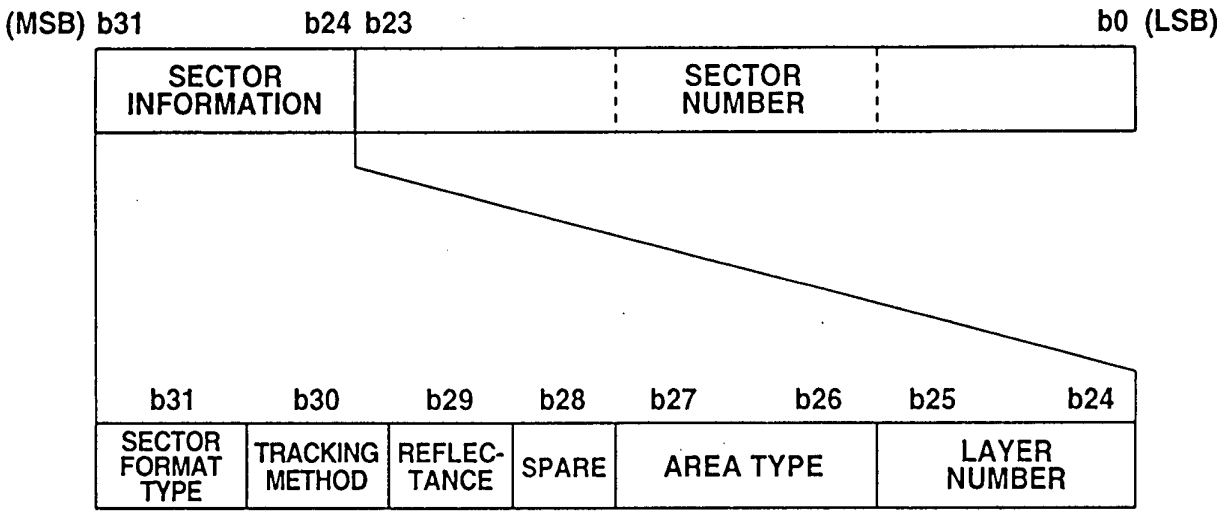


FIG.18

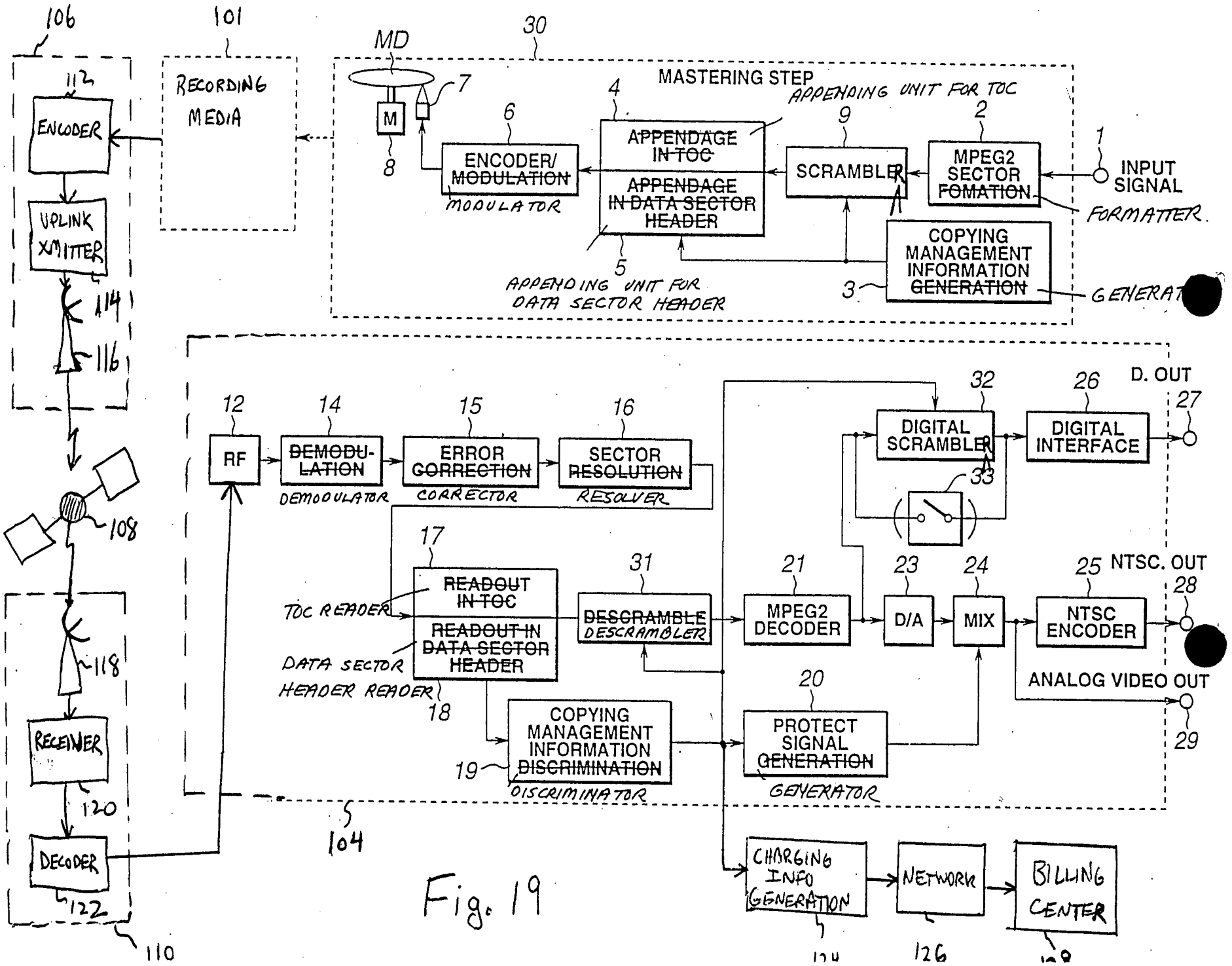

106
101
MD
30
112
ENCODER
RECORDING MEDIA
MASTERING STEP
APPENDING UNIT FOR TOC
7
4
6
9
2
1
M
8
ENCODER/ MODULATION
MODULATOR
APPENDAGE IN TOC
APPENDAGE IN DATA SECTOR HEADER
SCRAMBLER
MPEG2 SECTOR FOMATION
INPUT SIGNAL
FORMATTER
UPLINK XMITTER
5
APPENDING UNIT FOR DATA SECTOR HEADER
COPYING MANAGEMENT INFORMATION GENERATION
3
GENERAT
114
116
12
14
15
16
32
26
D. OUT
27
RF
DEMODU-LATION
ERROR CORRECTION
SECTOR RESOLUTION
DEMODULATOR
CORRECTOR
RESOLVER
DIGITAL SCRAMBLER
DIGITAL INTERFACE
33
108
17
31
21
23
24
25
NTSC. OUT
28
TOC READER
READOUT IN TOC
DESCRAMBLE
DESCRAMBLER
MPEG2 DECODER
D/A
MIX
NTSC ENCODER
DATA SECTOR HEADER READER
READOUT IN DATA SECTOR HEADER
18
20
ANALOG VIDEO OUT
118
COPYING MANAGEMENT INFORMATION DISCRIMINATION
19
PROTECT SIGNAL GENERATION
DISCRIMINATOR
GENERATOR
29
RECEIVER
120
104
DECODER
122
CHARGING INFO GENERATION
NETWORK
BILLING CENTER
110
124
126

Fig. 19

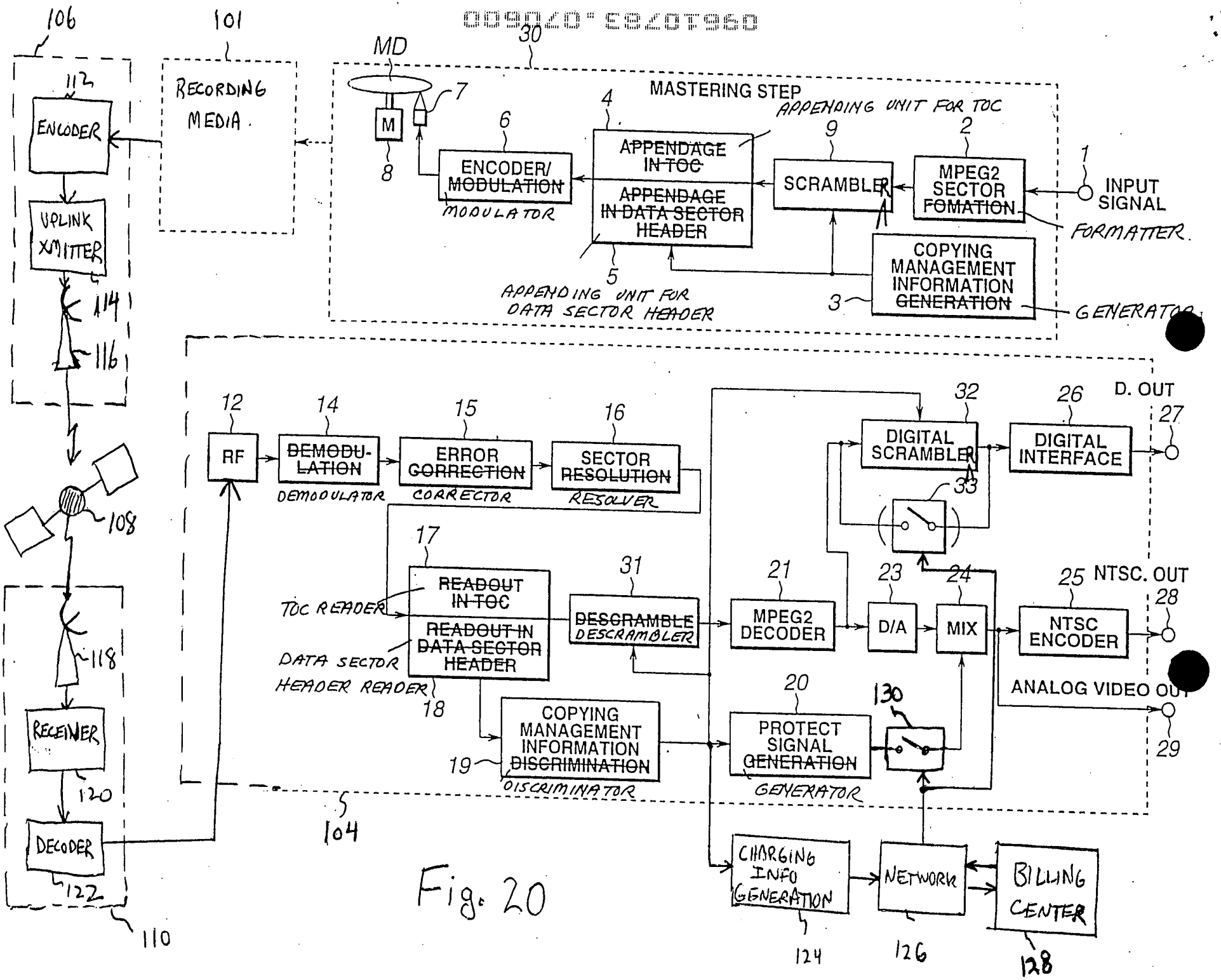

106
101
MD
30
MASTERING STEP
APPENDING UNIT FOR TOC
112
ENCODER
RECORDING MEDIA
7
M
8
6
ENCODER/ MODULATION
MODULATOR
4
APPENDAGE IN TOC
APPENDAGE IN DATA SECTOR HEADER
5
APPENDING UNIT FOR DATA SECTOR HEADER
9
SCRAMBLER
2
MPEG2 SECTOR FOMATION
FORMATTER
1
INPUT SIGNAL
3
COPYING MANAGEMENT INFORMATION GENERATION
GENERATOR
UPLINK XMITTER
114
116
108
118
RECEIVER
120
DECODER
122
110
104
12
RF
14
DEMODU-LATION
DEMODULATOR
15
ERROR CORRECTION
CORRECTOR
16
SECTOR RESOLUTION
RESOLVER
17
TOC READER
READOUT IN TOC
DATA SECTOR HEADER READER
READOUT IN DATA SECTOR HEADER
18
31
DESCRAMBLE
DESCRAMBLER
19
COPYING MANAGEMENT INFORMATION DISCRIMINATION
DISCRIMINATOR
32
DIGITAL SCRAMBLER
33
26
DIGITAL INTERFACE
D. OUT
27
21
MPEG2 DECODER
23
D/A
24
MIX
25
NTSC ENCODER
NTSC. OUT
28
ANALOG VIDEO OUT
29
20
PROTECT SIGNAL GENERATION
GENERATOR
130
CHARGING INFO GENERATION
124
NETWORK
126
BILLING CENTER
128

Fig. 20